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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/423,981 | 02/18/2000 | SHOGO MURAMATSU | 991304 | 7398 |

23850 7590 03/29/2004

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| EXAMINER |
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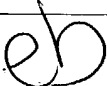
SAVAGE, JASON L

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| ART UNIT | PAPER NUMBER |
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1775

DATE MAILED: 03/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|--|--------------------------------------|---|---|
| <p align="center">Office Action Summary</p> | Application No. 09/423,981 | Applicant(s) MURAMATSU ET AL. | |
| | Examiner Jason L. Savage | Art Unit 1775 |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 and 6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☒ Claim(s) 4 and 6 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____. | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____. 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) 6) <input type="checkbox"/> Other: _____. |
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Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 2-26-04 has been entered.

Claim Objections

2. Claim 4 is objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot depend from any other multiple dependent claim. See MPEP § 608.01(n). Accordingly, the claim has not been further treated on the merits.

3. Claim 6 is objected to because of the following informalities:

Claim 6 depends from canceled claim 5 and as such, the scope of the claim can not be determined. Accordingly, the claim has not been further treated on the merits.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains.

Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mori et al. (US 6,090,497) in view of Kawagoe et al. (US 5,864,745).

Mori teaches a coated member wherein the coating is a wear resistant Al-Si alloy having a content of Si from 26-80 weight % and further containing fine Si particles from 0.01 to 10 μm dispersed therein (col. 2, ln. 27-37). The wear resistant coating may also contain additional materials such as 0.05-10%Mg, 0.5-10%Cu, 0.1-20% Sn, and between 0.05-15% of Mn, Fe, and/or Ni (col. 3, ln. 1-8; col. 3, ln. 65 – col. 4, ln. 9). Mori further teaches that the wear resistant coating which is formed by thermally spraying is suitable for compressor parts such as in automobiles (col. 5, ln. 44 – col. 6, ln. 3).

Regarding the limitation that the thickness of the coating is between 10 to 500 μm , Mori exemplifies an embodiment wherein the coating thickness is 300 μm (col., 6, ln. 19-24 and col. 7, ln. 39-44).

Regarding the limitation that the ratio of the short-diameter to long diameter Si particles is 1/3 or more, the particles in Figure 1 of Mori appear to fit well within the claimed ratio as most of the particles appear to be more rounded in shape.

Regarding the limitation that the alloy contain some particles having a size greater than 10 μm , Mori teaches the particles in the comparative example are as large as 20 μm (col. 9, ln. 24-25). Also, the teaching of Mori that particle sizes greater than 10 μm are undesirable because it causes unfavorable acceleration of abrasion of a counter material (col. 4, ln. 20-22) shows that Mori has produced an alloy having some particles greater than 10 μm . All the disclosures in a reference must be evaluated for

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what they fairly teach one of ordinary skill in the art even though the art teachings relied upon are phrased in terms of a non-preferred embodiment or even as being unsatisfactory for the intended purpose, *In re Boe*, 148 USPQ 507 (CCPA 1966); *In re Smith*, 65 USPQ 167 (CCPA 1945); *In re Nehrenberg*, 126 USPQ 383 (CCPA 1960); *In re Watanabe*, 137 USPQ 350 (CCPA 1963). Furthermore, the claim does not require that all of the particles are greater than 10 μm , Applicant has failed to show how having a limited number of particles greater than 10 μm in size would provide a patentable distinction over the prior art.

Regarding the limitation that the flame-spraying method used is HVOF, HVOF is a well known method of thermal-spraying. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used any known method of thermal-spraying, including HVOF to have applied the aluminum-alloy coating. Furthermore, the HVOF process does not provide a distinction over other flame-spraying methods since Applicant admits on page 5, lines 28-29 of the Specification that various flame-spraying methods can be employed to form the claimed aluminum-alloy. Finally, HVOF is a process limitation, when there is a substantially similar product, as in the applied prior art, the burden of proof is shifted to the applicant to establish that their product is patentably distinct not the examiner to show that same process of making, see *In re Brown*, 173 U.S.P.Q. 685, and *In re Fessmann*, 180 U.S.P.Q. 324.

Mori does not teach the roughening of the substrate surface; however, it is well known in the art to roughen the substrate surface in order to improve the adhesion of

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the overlying coating. Kawagoe teaches a flame sprayed aluminum silicon alloy (col. 13, ln. 5-7) as well as shot blasting the substrate to roughen the surface before applying the wear resistant coating (col. 15, ln. 59 – col. 6, ln. 31). It would have been obvious to one of ordinary skill in the art at the time of the invention to have roughened the surface of the substrate prior to applying the wear resistant coating of Mori in order to have increased the adhesion between the substrate and the coating.

Regarding the limitation that the flame-sprayed aluminum alloy has adhesive strength of film higher than that of a flame-sprayed Ni film, such an adhesive strength would have been inherent. The Patent and Trademark Office can require Applicant to prove that prior art products do not necessarily or inherently possess characteristics of claimed products where claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes; burden of proof is on Applicants where rejection based on inherency under 35 U.S.C. § 102 or on prima facie obviousness under 35 U.S.C. § 103, jointly or alternatively, and Patent and Trademark Offices inability to manufacture products or to obtain and compare prior art products evidences fairness of this rejection, *In re Best, Bolton, and Shaw*, 195 U.S.P.Q. 431 (CCPA 1977).

Regarding the material ranges in claim 3, although the weight percentages of the additional materials are not within the exact same ranges claimed by Applicant, all of the material ranges taught by Mori overlap the material ranges claimed by Applicant which obviates claim 3.

Response to Arguments

6. Applicant's arguments filed 2-26-04 have been fully considered but they are not persuasive.

Applicant argues that the newly added limitation that the thickness of the coating is between 10 to 500 μm , among others, distinguishes the subject claims over the casting comparative example of the Mori patent in which a coarse Si (20 μm) is disclosed.

However, Mori exemplifies an embodiment wherein the coating thickness is 300 μm (col., 6, ln. 19-24 and col. 7, ln. 39-44). Furthermore, Kawagoe teaches that thicknesses of the flame-sprayed coating layer is preferably within the range from 5 to 500 μm in order to insure the sliding properties are sufficient and that the desired structure is obtained (col. 7, ln. 61 – col. 8, ln. 8), making the newly added thickness limitation obvious in view of the prior art.

7. Any inquiry to this communication or earlier communications from the Examiner should be directed to Jason Savage, whose telephone number is (703)305-0549. The Examiner can normally be reached Monday to Friday from 6:30 AM to 4:00 PM.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Deborah Jones, can be reached on (703)308-3822.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

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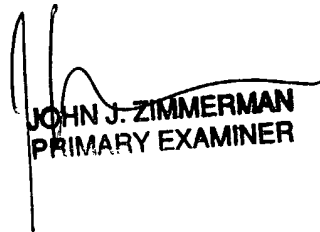
Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jason Savage

3-10-04



JOHN J. ZIMMERMAN
PRIMARY EXAMINER